

1. Projects



Rationing carbon emissions for travel: a promising alternative to the carbon tax?

Finished research

Begin: October 2020

End: September 2021

Transport is responsible for 30% of greenhouse gas emissions in France, and this figure is constantly increasing. Technological innovations and the push for a “modal shift” aren’t enough to compensate for the increasing number of oil-fuelled kilometers travelled. Personal carbon allowances are presented as an alternative to taxation. These would allow us to acknowledge and respect the planet’s limits, distribute energy resources equitably and pursue public policies that respond to this new environmental state of affairs. Such allowances applied to polluting travel could take the form of a carbon card and be distributed according to democratically defined criteria. Would such a proposal be possible, fair and desirable?

Research participants

- Arnaud Passalacqua
- Workshop Master AIED University of Paris

So far, no strategy in France has effectively been able to reduce transport-related carbon emissions ¹, whether through technological innovations (improving engines, electric cars, etc.) or incentives to use low-polluting means of transport (bicycle, public transport, etc.). As a result, politicians are starting to think about how to limit the volume of carbon-emitting trips themselves. This was the stated goal of the carbon tax hike on fuel, which was opposed by the Yellow Vests movement and rejected by the Citizens Convention for Climate. It is unfair insofar as it disproportionately affects the poorest households and it is inefficient because it has little impact on the lifestyles of the richest members of society ², who also happen to be those who pollute the most. Can we come up with a policy that manages to limit carbon-based travel all the while being fair? Could directly capping the amount of polluting trips allocated to each French individual be an alternative to the carbon tax?

This would have at least two advantages:

- it would prevent emitting more carbon than the limits set at the national level.
- it would give each French person the same rights, regardless of their means.

This is part of a wider discussion on allocating “carbon quotas” (or carbon credits), in other words limited quantities of carbon emissions, for all human activities (housing, mobility, work...). The idea, which gets bad press in France but is increasingly discussed by civil society, is now advocated by researchers (such as Mathilde Szuba ³ and Jean-Baptiste Fressoz ⁴), elected officials (François Ruffin and Delphine Batho ⁵) and activists (such as the Assises du Climat initiative led by Pierre Calame ⁶). So far, supporters and detractors are mainly arguing at the level of principles, as the rationing of emissions has never been the subject of a practical and quantified feasibility study.

53% are in favour:

According to the survey carried out by the Mobile Lives Forum during the spring lockdown, 53% of French people would be in favour of rationing measures aimed at reducing the volume of trips, provided that this rule is fair and doesn’t allow the better-off to work around it. ⁷

It’s already being done:

This idea has already been tested, as in the recent case of Lahti, a city in Finland that rewarded residents who voluntarily managed to keep their urban trips within a certain quota ⁸.

The goal of the project

The Mobile Lives Forum wanted to assess the feasibility, at the national scale in France, of a policy of rationing the most carbon-emitting trips (i.e., those made by car and by plane) in order to achieve the goal set by the National Low Carbon Strategy ⁹ of being carbon neutral by 2050. Transport is today the leading emitter of greenhouse gases in France (30% of national emissions in 2015). As these

emissions are entirely energy related, the strategy aims to reduce emissions by 28% in 2030 compared to 2015, and to make transport completely emissions-free by 2050. These goals remain abstract: how do we make sure we live up to these commitments and what concrete impacts will they have on the lives of French people?

To find out, the Mobile Lives Forum approached transport historian and engineer Arnaud Passalacqua, director of the master's program in Energy, Ecology and Society at the University of Paris.

The Mobile Lives Forum asked the students to:

- imagine a scenario whose hypotheses have been selected based on practical feasibility, potential efficiency, and social equity (actors and trips to target as a priority, implementation schedule, attribution criteria, etc.),
- test the trajectories of a gradual reduction in carbon-emitting trips available to real inhabitants, to identify the potential effects of the rationing on their lifestyles and possible red flags.

The criteria for the relevance of rationing carbon-emitting trips:

- Equity:

By choosing to allocate to everyone, regardless of income, the same right to emit while traveling, the rationing of carbon-emitting trips is meant to be fairer than the carbon tax. This policy places the main effort on people whose lifestyles are the most emitting, in other words those whose purchasing power is the highest. Remember, 40% of French people have never taken a plane, 30% don't fly more than once a year and only 15% do so several times a year ¹⁰.

- Clarity:

By placing the same cap on carbon emissions on everyone, the effort against global warming becomes shared in a very concrete way, unlike with the carbon tax that does not impose a limit, does not guarantee to reduce carbon-emitting trips, and does not allow citizens to assess its impact or allocate its revenue clearly and perceptibly.

- Practicality:

Rationing is particularly suited to limiting carbon-emitting travel insofar as it can be based on a pre-existing control system since the distribution of fuel and the management of seats on flights are already supervised by public authorities. These markets cannot easily transition to self-production (oil) or to the black market for their distribution (plane tickets registered to one person). Note that for a realistic implementation, the scenario did not take international flights into account.

- Window of opportunity:

By focusing on direct emissions linked to travel (buying fuel or plane tickets), by design, it does not aim to limit indirect emissions such as those linked to vehicle production, and only makes sense so long as the vast majority of vehicles in use are powered by internal combustion engines.

The main results: it is possible and it is edifying!

The rationing of carbon-emitting trips is indeed possible. Its implementation would be facilitated by adopting few and flexible management rules and control instruments, essential to avoid bureaucratization:

- The allocation of individual carbon quotas would benefit from being centralised in a national public agency.
- They could be credited to a personal magnetic card (like a credit card) which would be presented when buying fuel and/or plane tickets for domestic flights and debited as the corresponding emissions are consumed.
- After a test period (a blank year where quotas are allotted and set at the initial rate of emissions) allowing everyone to adapt as best as possible, rationing could be deployed gradually, starting with work-related trips (professional and home-to-work commutes), covered by the employers' quota, before including personal trips by plane, which are less essential to daily life, then moving onto trips made by a internal combustion engine car.

This progressive implementation would give public policies and individuals time to adapt.

- To strengthen fairness and acceptability, the quota allocated to each individual could be adjusted according to household size, the type of inhabited territory (people living in the countryside would have a larger quota than those living in the city), situations that require individuals to travel a lot (job hunting, medical purposes, etc.)
- Finally, the ability to buy or resell missing or surplus quotas could help people deal with unforeseen situations, but the current low price of carbon removes any impact in terms of redistribution.

The need to rethink the entire travel system

Simulating how the rationing of carbon-emitting travel would affect inhabitants' lifestyles is eye-opening and forces people to take notice. Indeed, the students' model reveals that in order to uphold the commitments made by the SNBC, we must completely rethink the travel system: for example, by developing frequent and regular public transport in peripheral areas and by aiming to bring workplaces and living spaces closer together.

For example, in the tested profiles (see below), an average manager like Sylvain who regularly travels for work (by car and by plane) will need to reduce his carbon emissions by 6% in 2030, by more than 40% in 2040 and by 97% in 2050, going from 3.1 tCO₂ in 2021 to 0.1 tCO₂ in 2050. A profound change in his work-related travel is therefore necessary. He will have to reduce his home-to-work commutes too, by favouring teleworking or carpooling; he will have to stop travelling by plane by 2040; and eventually, he will either have to move house or buy a small electric car.

Another example is that of Anaïs, a student in 2021. We can see that in 2030 and 2040, she will not have to reduce her already very limited carbon-emitting movements, which currently amount to barely 0.2 tCO₂. However, she will have to make a major effort by 2050,

reducing her emissions by 83%. In concrete terms, this means that after the end of her studies, she will have to maintain a low-carbon lifestyle. For this, she will have to favour going on holiday to destinations that are closer to home, or choose modes of transport that are perhaps slower but zero carbon: the European train network, night trains, etc. For her daily trips, if she needs a car, she will have to opt for carpooling services or buy a small electric vehicle.

At this stage of the analysis, rationing appears to be an interesting alternative to the carbon tax, one worth exploring to reduce travel-related carbon emissions and help limit global warming. Several points remain to be explored, such as the advantage of combining the rationing of emissions linked to travel and those linked to housing. Rationing carbon-emitting travel in France would also raise questions about our ability to simultaneously accept the unrestricted travel of foreigners to our country (tourists, trucks, etc.). This area of friction between the rights of residents and the rights of non-residents could be studied with local experiments (metropolitan areas, regions, etc.). These experiments would undoubtedly raise awareness, among political actors and citizens, about the extent of the transformations required in terms of social and territorial organization, given the climate situation.

Discover the impact of carbon rationing on four people by 2050 (in French)



Janine

**MOBILITÉ
PERSONNELLE**





Anais

**MOBILITÉ
PERSONNELLE**



Jean-Pierre

**MOBILITÉ
PERSONNELLE**





Jean-Pierre

**MOBILITÉ LIÉE
AU TRAVAIL**



Sylvain

**MOBILITÉ
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Sylvain

MOBILITÉ LIÉE AU TRAVAIL

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Une carte carbone dédiée aux déplacements :
est-ce possible, juste et souhaitable ?



Etude prospective réalisée par les étudiants du Master
« Approche interdisciplinaire des énergies de demain » pour le
Forum Vies Mobiles

*Mickaël Devienne, Modou Fall, Sophie Manasterski, Antoine Mini,
Christelle Rouaud, Máté Seress*

Notes

- 1 [Reducing the carbon footprint of mobility, what policies in France?](#), forumviesmobiles.org
- 2 As recognized in the "Report on the environmental impact of the state budget" in the context of the 2021 finance bill (PLF).
- 3 Libération, Mathilde Szuba: "We must politically regulate all consumption for the purposes of justice", July 2019
- 4 Le Monde, Jean-Baptiste Fressoz, "Rationing transport is much more democratic than increasing CO2 taxes", August 2019
- 5 National Assembly, Bill to establish an individual carbon quota to limit the use of places, presented by Mr. François RUFFIN and Ms. Delphine BATHO, June 2020
- 6 Le Monde, Pierre Calame: "Against global warming, we must establish an obligation of result", March 2020
- 7 [Survey on the impacts of the lockdown on French people's lifestyles and mobility](#), forumviesmobiles.org
- 8 UIA, CitiCap: Citizen's cap-and-trade co-created
- 9 Ministry of Ecological Transition, The National Low Carbon Strategy
- 10 Ministry of Ecological Transition, National Transport and Travel Survey (ENTD) 2008

Movement

Movement is the crossing of space by people, objects, capital, ideas and other information. It is either oriented, and therefore occurs between an origin and one or more destinations, or it is more akin to the idea of simply wandering, with no real origin or destination.

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Mobility

For the Mobile Lives Forum, mobility is understood as the process of how individuals travel across distances in order to deploy through time and space the activities that make up their lifestyles. These travel practices are embedded in socio-technical systems, produced by transport and communication industries and techniques, and by normative discourses on these practices, with considerable social, environmental and spatial impacts.

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Lockdown

The lockdown measures implemented throughout 2020 in the context of the Covid-19 crisis, while varying from one country to the next, implied a major restriction on people's freedom of movement for a given period. Presented as a solution to the spread of the virus, the lockdown impacted local, interregional and international travel. By transforming the spatial and temporal dimensions of people's lifestyles, the lockdown accelerated a whole series of pre-existing trends, such as the rise of teleworking and teleshopping and the increase in walking and cycling, while also interrupting of long-distance mobility. The ambivalent experiences of the lockdown pave the way for a possible transformation of lifestyles in the future.

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Teleworking

The remote performance of a salaried activity outside of the company's premises, at home or in a third place during normal working hours and requiring access to telecommunication tools.

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Lifestyle

A lifestyle is a composition of daily activities and experiences that give sense and meaning to the life of a person or a group in time and space.

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Lifestyles

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Policies

- [Cars](#)
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- [Reducing inequalities](#)

- Ecological transition

To cite this publication :

Arnaud Passalacqua et Workshop Master AIED University of Paris (07 December 2020), « Rationing carbon emissions for travel: a promising alternative to the carbon tax? », Préparer la transition mobilité. Consulté le 07 May 2025, URL: <https://forumviesmobiles.org/en/project/13515/rationing-carbon-emissions-travel-promising-alternative-carbon-tax>



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Other publications



[Mobilities: the French government has to back up its environmental ambitions with the means to achieve them](#)

Mobile Lives Forum, Anne Fuzier, Christophe Gay, Sylvie Landriève



["Limiting the carbon footprint of mobility: what are the right policies for France?"](#)

Jean-Baptiste Frétigny, Christophe Gay, Jean-Marc Offner

- 1 <https://en.forumviesmobiles.org/project/2018/05/17/decarbonizing-mobility-what-policies-france-12424>
- 2 <https://en.forumviesmobiles.org/project/2020/04/23/survey-impacts-lockdown-french-peoples-mobility-and-lifestyles-13297>
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